

Aerial Lashing Instructions

Aerial installation can be performed by lashing a fiber optic cable designed for aerial lashing to an existing steel messenger wire. These fiber optic cables may be lashed to the steel messenger wire even if there is already another fiber optic cable attached.

Some precautions to aerial lashing include the following:

- Follow the National Electrical Safety Code (NESC) for all installations
- Cables installed near high voltage lines should be grounded
- Cables that contain a corrugated steel tape should be grounded
- The steel messenger shall be grounded
- Maintain proper clearances between the fiber optic cable and the power cables
- Make allowances for changing sag of the steel messenger wire in various weather conditions. Steel messenger wire will expand and increase sag in warm weather.
- The steel messenger should be kept on one side of the poles (avoid zigzagging from one side of the pole to the other)
- Maintain proper tension with the lashing wire and avoid excessive tension.

There are two basic types of aerial lashing; moving reel method and stationary reel method.

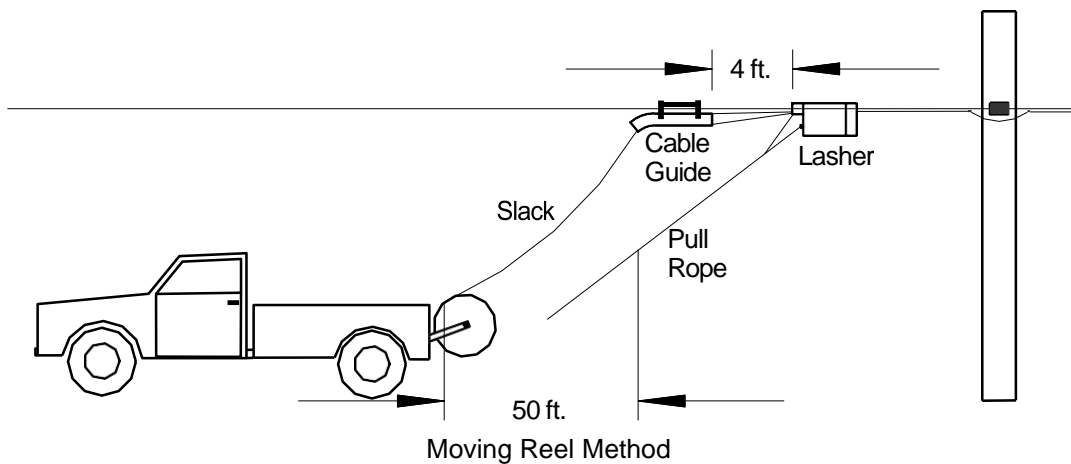
Moving Reel Method

The moving reel method is best used when there are no obstacles between the cable reel and the steel messenger. Also, a clear path along the pole line is needed for the reel trailer and truck. This method of lashing is typically less costly than other methods due to the fact that there is less hardware involved during the installation.

The reel trailer and truck are used to distribute the cable onto the steel messenger. A cable guide and lasher are used to secure the cable to the steel messenger. The lasher is pulled by hand along the length of route. The cable guide is used to help guide the cable ahead of the lasher. The cable guide should be kept 4 feet in front of the lasher by the use of stiff rod. The cable guide must have a smooth surface and meet the minimum bending radius of the cable.

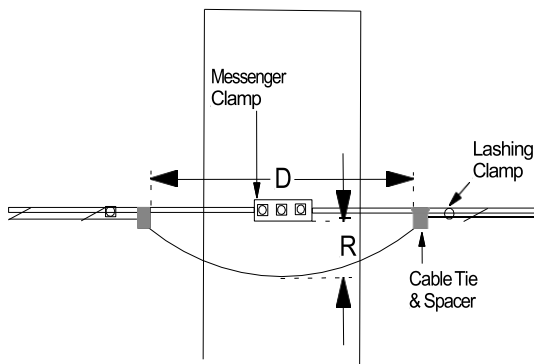
The cable reel must be kept at least 50 feet in front of the cable guide. While pulling the lasher by hand at a constant speed, a slight downward tension should be kept on the lasher. The cable should not be allowed to wrap around the steel messenger.

Each time a pole is reached, the pulling should stop. The lasher and cable guide should be disconnected and moved past the pole. The lashing wire should be terminated with a lashing clamp and the cable formed into an expansion loop. Once the lasher and cable guide are moved to the other side of the pole and the expansion loop is complete, the lashing operation should be continued.



An expansion loop is formed at each pole to allow for the expansion of the steel messenger. The steel messenger expands and contracts with temperature changes at much higher rates than fiber optic cables.

The expansion loop's size should be determined by the weather and messenger constraints. The length of D of the loop in the figure below should be greater than twice its depth R. The length D should also be greater than twice the cable's minimum bending radius.



Expansion Loop

Stationary Reel Method

The stationary reel method is best used when there are obstacles between the cable reel and the steel messenger or there is no clear path along side the pole line to allow a reel trailer and truck to drive through.

In the stationary reel method, the fiber optic cable is pulled into place underneath the steel messenger using stringing blocks. The cable is then lashed to the steel messenger.

During the pull of the cable onto the stringing blocks, Kellems pulling grips and a break-away swivel that is rated at the proper pulling tension of the cable should be used to attach the pulling rope to the cable. Please refer to the Installation – General Guidelines of the Optical Cable Corporation Installation Guide.

Cable blocks should be suspended beneath the steel messenger and are used to temporarily support the cable beneath the steel messenger until it can be lashed. The maximum spacing for the stringing blocks is 50 feet. Shorter distances are recommended. All stringing blocks should be placed on the steel messenger facing the same direction. The stringing blocks should be sized appropriately the size of cable being installed. Snatch blocks should be used on corner poles when the cable route changes directions.

A cable guide should be used to guide the cable onto the stringing block. The cable guide must have a smooth surface and meet the minimum bending radius of the cable.

Once the cable has been pulled onto the stringing blocks, the cable is ready to be lashed. The lasher should be pulled by hand along the length of route beginning at the far end of the route and then pulled towards the stationary reel. While pulling

the lasher by hand at a constant speed, a slight downward tension should be kept on the lasher. The cable should not be allowed to wrap around the steel messenger.

Each time a pole is reached, the pulling should stop. The stringing blocks are pushed ahead of the lasher as it moves down the cable route. When reaching a pole, the stringing blocks should be removed from the strand. The lasher should

then be disconnected and moved past the pole. The lashing wire should be terminated with a lashing clamp and the cable formed into an expansion loop. Once the lasher and cable guide are moved to the other side of the pole and the expansion loop is complete, the lashing operation should be continued (see expansion loop description under moving reel method).

